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Orchidaceae Dunstervillorum II. *Maxillaria cryptobulbon* sp. nov.
and a Note on the *Maxillaria brunnea* Complex

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Maxillaria cryptobulbon Carnevali & J. T. Atwood, sp. nov. TYPE: Ecuador. Morona-Santiago: Serranía de Cutucú, 25 km SE of Logroño, flowering at the Marie Selby Botanical Gardens, 6–10 Jan. 1991, *J. D. Ackerman 1041*, accession number SEL 76-0023-068-EC, based on *Madison s.n.* (holotype, SEL; isotypes, MO, VEN). Figures 1, 2.

Species haec *M. brunneae* Linden & Reichb. f. affinis sed pseudobulbis multiminoribus vaginis scariosis stramineis omnino occultis, pseudobulbi vaginis vulgo non foliaceis vel raro limbo munitis; foliis latioribus ellipticis vel late ellipticis, longe petiolatis; sepalis rubro-brunneis, petalis interne aurantiacis vel roseis, externe rubro-brunneis; labello angustiore, lobo apicali ovato vel oblongo-lanceolato, proportione longiore, callo elliptico angustiore, conspicue excavato recedit.

Epiphytic or rarely muscicolous, caespitose herbs 30–50 cm tall. Rhizome very abbreviated; pseudobulbs 0.8–1.2 cm long, 0.9–1.5 cm wide, apically 1-leaved, transversely ellipsoid to suborbicular, or rarely oblong, \pm laterally compressed, clothed by several sheaths; sheaths broad, imbricate, pale cream-brown or very clear white, shiny, papery in dried specimens, persisting on mature pseudobulbs and disintegrating in older ones, sometimes the uppermost with foliar blade. Leaves and the blades of the

sheaths (20–)25–35(–42) cm long, (2.3–)4.5–7 cm wide, long-petioled; blades elliptic to broadly elliptic, acute, somewhat decurved in natural position, underside often somewhat glaucous; petioles (4–)8–15(–24) cm long, ($\frac{1}{5}$ –) $\frac{1}{3}$ – $\frac{1}{2}$ (– $\frac{2}{3}$) the length of the blade, laterally compressed, channeled in the apical half, becoming subterete in the lower half. Inflorescences 8–15 cm long, usually about $\frac{1}{2}$ the length of the petiole, rarely longer, 1-flowered, 1–3 originating simultaneously from the flush of the new growth; peduncle subterete, erect to subhorizontal, almost completely clothed by 4–6 subinflated, tubular sheaths; sheaths 2–3.3 cm long, dull dark red-purple with a green apex when fresh, drying pale dull brown. Floral bracts 23–26 mm long, 14–16 mm wide, elliptic to oblanceolate, obtuse, mucronulate. Ovary with pedicel 30–33 mm long, terete, verruculose. Flowers resupinate, horizontally patent, lasting 4–6 days on the plant; sepals dark dull red-brown or bright maroon-red, petals pink or yellow-orange within, tinged with dull red-brown without, labellum yellow-cream with bright yellow callus, the underside of the central lobe very dark red-purple. Sepals 26–28 mm long, 6–7.5 mm wide, oblong or oblong-lanceolate, apex obtuse to rounded; dorsal sepal concave and \pm hooded over the column; the laterals \pm oblique; petals 22–25 mm long, 5–6 mm

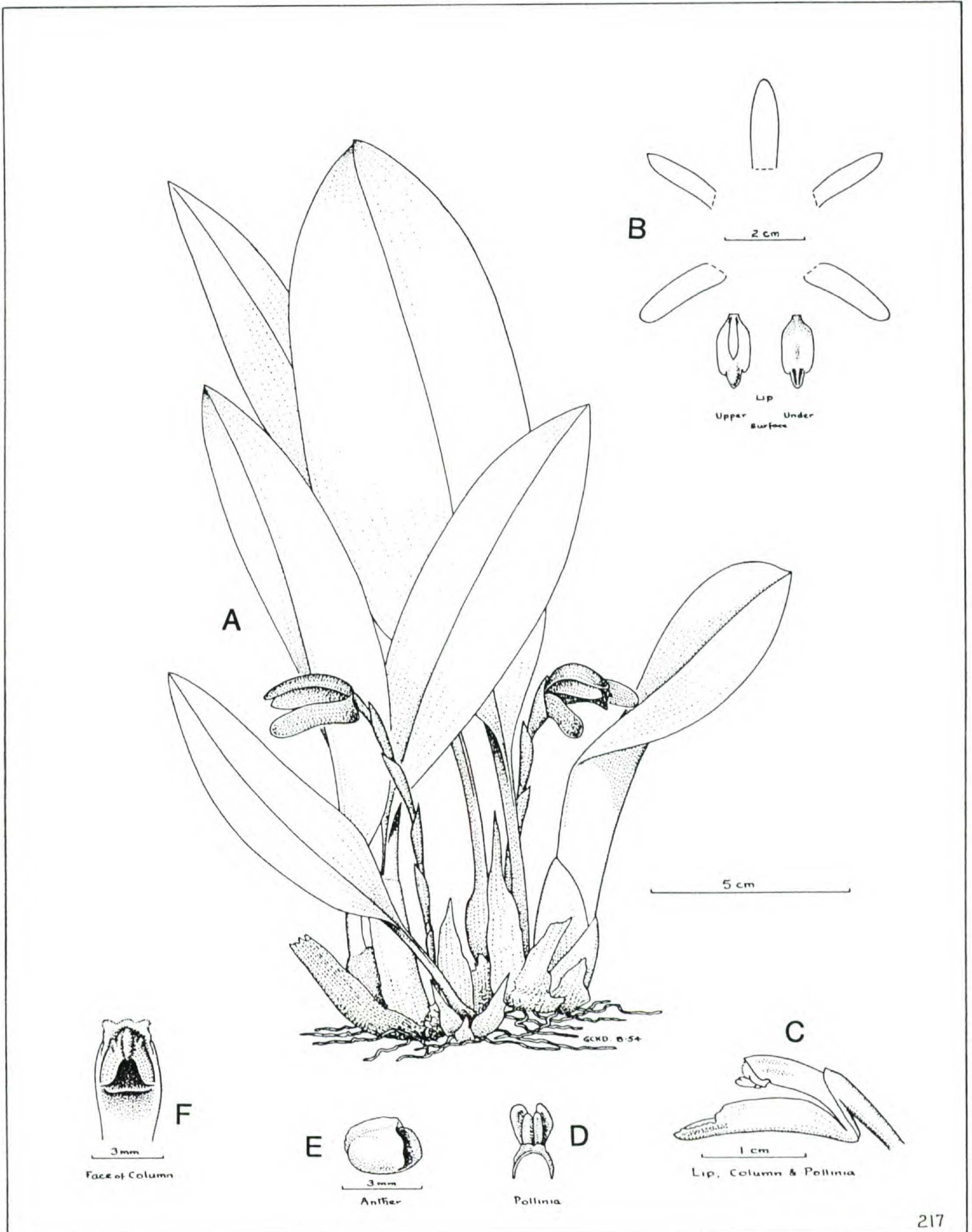


Figure 1. *Maxillaria cryptobulbon*. —A. Flowering habit. —B. Perianth segments, flattened. —C. Lateral view of labellum and column. —D. Pollinia, ventral view. —E. Anther, lateral view. —F. Column, apical half, ventral view. (Based on *Dunsterville & Dunsterville 217.*)

wide, obliquely oblong-lanceolate, acute to obtuse, fleshier in the apical half in fresh material. Labellum 3-lobed in the apical $\frac{1}{4}$, 16–18 mm long, 8–9 mm wide between the spread apices of the lateral lobes,

oblong or oblanceolate; lateral lobes erect and partially surrounding the column in natural position, apices erose or crenate, rounded or subtruncate; central lobe 4.5–5.5 mm long, ca. 4 mm wide,

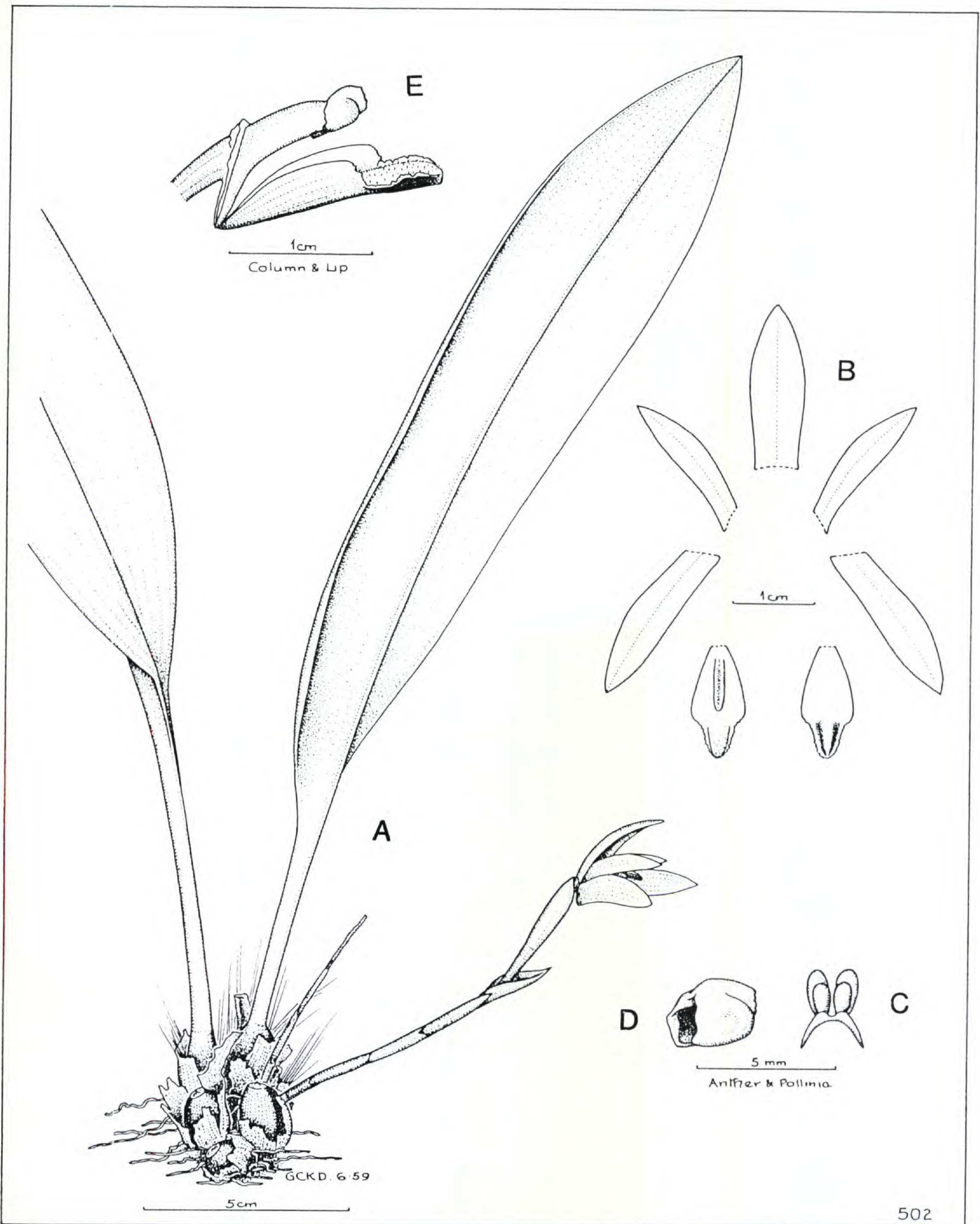


Figure 2. *Maxillaria cryptobulbon*. —A. Flowering habit. —B. Perianth segments, flattened. —C. Pollinaria, ventral view. —D. Anther, lateral view. —E. Column and labellum, lateral view. (Based on *Dunsterville & Dunsterville 502*.)

oblong to ovate-oblong, obtuse, thickened and fleshy, keeled without, margins surrounded by an undulate, suberect, rigid membrane ca. 0.5 mm wide, ventral face subrugulose; disk smooth, provided with a well-

developed callus; callus 9–10 mm long, ca. 2 mm wide, narrowly elliptic, acute, glabrous except for the apical $\frac{1}{3}$, deeply channeled longitudinally; the whole blade laxly covered by a pubescence com-

posed of 0.1-mm-long, 2–3-cellular, fusiform or clavate hairs, pubescence is denser on the central lobe and on the apical margins of the callus. Column 7–9 mm long, 2.5–3 mm thick, hemicylindric, smooth, ventrally with a longitudinal, low, medial keel, basally with a well-developed foot 4–4.5 mm long at 45°–75° angle; clinandrium microscopically erose; anther dorsally keeled, keel smooth.

Paratypes. COSTA RICA. CARTAGO: along Camino Raíz de Hule, SE of Platanito (Tsiripi), 1,200–1,400 m, 1 July 1976, *Croat 36769* (MO, SEL). ECUADOR. CARCHI: El Pailón, ca. 45 km below Maldonado, wet montane forest, 800 m, 27 Nov. 1979, *Madison & Besse 7064* (SEL). NAPO–PASTAZA: near Puyo, 13 Oct. 1961, *Dodson & Thien 951* (MO, SEL); near Tena, 450 m, 26 Feb. 1963, *Dodson & Thien 2319* (MO, SEL); along road from Cotundo to Hollín-Coca, 1,100 m, 31 Apr. 1987, *Dodson et al. 17087* (MO); near Lumbaqui in road Baeza to Lago Agrio, 800 m, 7 Feb. 1989, *Dodson & Embree 18147* (MO); Bermejo Oil Fields, 800–1,000 m, 9 Feb. 1986, *Hirtz et al. 2710* (MO); Río Pastaza below Río Negro, 1,500 m, 18 Mar. 1976, *Luer, Luer & Taylor 892* (SEL); Topo, at junction of Río Topo and Río Pastaza, 1,300 m, 10 Dec. 1986, *Dodson & Hagsater 16748* (MO, SEL); E of Río Topo bridge, 1,200–1,300 m, 23 Mar. 1939, *Penland & Summers 253* (AMES). TUNGURAHUA: Río Mapoto, confluence with Pastaza, 1,200–1,300, 21 Mar. 1939, *Penland & Summers 206* (AMES); Río Ulba above power station E of Baños, 22 Feb. 1963, *Dodson & Thien 2300* (MO, SEL); Río Verde, 21 Apr. 1971, *Holguer Lugo 1775* (AMES); Cashurco, near Río Negro, N side of Río Pastaza, 18 Mar. 1969, *Holguer Lugo 803* (AMES). VENEZUELA. BOLÍVAR: La Escalera, 107–118 km al S de El Dorado, 5°50'N, 61°30'W, 500 m, 2 Apr. 1985, *Holst, Steyermark & Manara 2076* (VEN). MIRANDA: Parque Nacional Guatopo, ca. 15 km SO de Caucagua vía Los Alpes, ca. 650 m, 20 July 1985, *Carnevali, Casaudoumecq & Sanoja 1979* (VEN); Guatopo, ca. 600 m, *Dunsterville & Dunsterville 217* (AMES), *Dunsterville & Dunsterville 502* (AMES).

Maxillaria cryptobulbon is closely related to *M. brunnea* Linden & Reichb. f., *M. amazonica* Schltr., *M. powelli* Schltr., and some other closely related species in the *Maxillaria brunnea* complex. From them, *Maxillaria cryptobulbon* is clearly distinguishable by: its broadly elliptic, long-petioled blades; occasionally having foliaceous sheaths; the narrowly elliptic, deeply sulcate callus (obtrullate, shallowly concave in *M. brunnea*) that is glabrous with the exception of the margins at the apical 1/3; and the oblong or lanceolate, obtuse central lobe of the labellum. The labellum is also longer and proportionally narrower. The coloration of the flowers is distinctive as well: while most of the flowers in the *Maxillaria brunnea* complex have yellow, yellow-cream, yellow-pink to orange sepals and petals, in *M. cryptobulbon* they are dark dull brown-red or bright maroon-red. Vegetatively, *Maxillaria cryptobulbon* resembles somewhat *M. perryae* Dodson

from Ecuador, but the plant and flowers are smaller, and the labellum is narrower in the former. The name, *M. cryptobulbon*, refers to the relatively small pseudobulbs hidden by the sheaths.

This species has been frequently misidentified in herbaria as *M. brunnea* because of the superficial similarity of the flowers. Illustrations of *Maxillaria cryptobulbon* have been published twice by Dunsterville & Garay in their series *Venezuelan Orchids Illustrated*, once as *Maxillaria brunnea* (*Dunsterville & Dunsterville 217*, AMES, VEN; *Dunsterville & Garay, 1959: 220*), and again as *M. trinitatis* Ames (*Dunsterville & Dunsterville 502*, AMES; *Dunsterville & Garay, 1961: 223*). These two illustrations, which we reproduce here, clearly depict the variability of the species. Most of the specimens seen resemble vegetatively plate #502, which lacks the foliaceous sheaths, but the flowers are most similar to plate #217. The type of *M. cryptobulbon* (*Madison s.n.*) is an almost perfect match to plate #217, but some of the pseudobulbs lack the foliaceous sheaths.

Maxillaria cryptobulbon is a species of premontane rain or cloud forests at 450–1,500 m elevation. It seems to occur in shadier positions than other members of the *M. brunnea* complex, which may explain the broad leaves and foliaceous sheaths. It remains to be established whether the presence of foliaceous sheaths is genetically fixed or is a plastic response to environmental factors such as light intensity and humidity.

A NOTE ON THE *MAXILLARIA BRUNNEA* COMPLEX

The *Maxillaria brunnea* complex consists of several closely related species. The type of *Maxillaria brunnea* Linden & Reichb. f. (*Funk & Schlim 1161*, W) comes from Colombia, Norte de Santander: Ocaña, 7,000', and is a fragmentary specimen depicting only a leaf (apparently cut above the petiole) and a solitary flower. Hence, some characters of much importance in this complex are wanting (e.g., presence vs. absence of foliaceous sheaths, petiole length, shape and size of the pseudobulbs). However, material of the complex coming from near the type locality is clearly what is being called under this name and is characterized by nonfoliaceous sheaths to the pseudobulbs (very rarely the uppermost with a foliar blade), linear-oblong foliar blades, oblong, obtuse to rounded or rarely subacute sepals, 2.5–3.2 cm long, that are dull to bright yellow often with some dull maroon or purplish flush without, cream labellum, sometimes with dull purple streaks and a band or spot of very dark red-purple on the underside of the mid-lobe and apex of the lateral

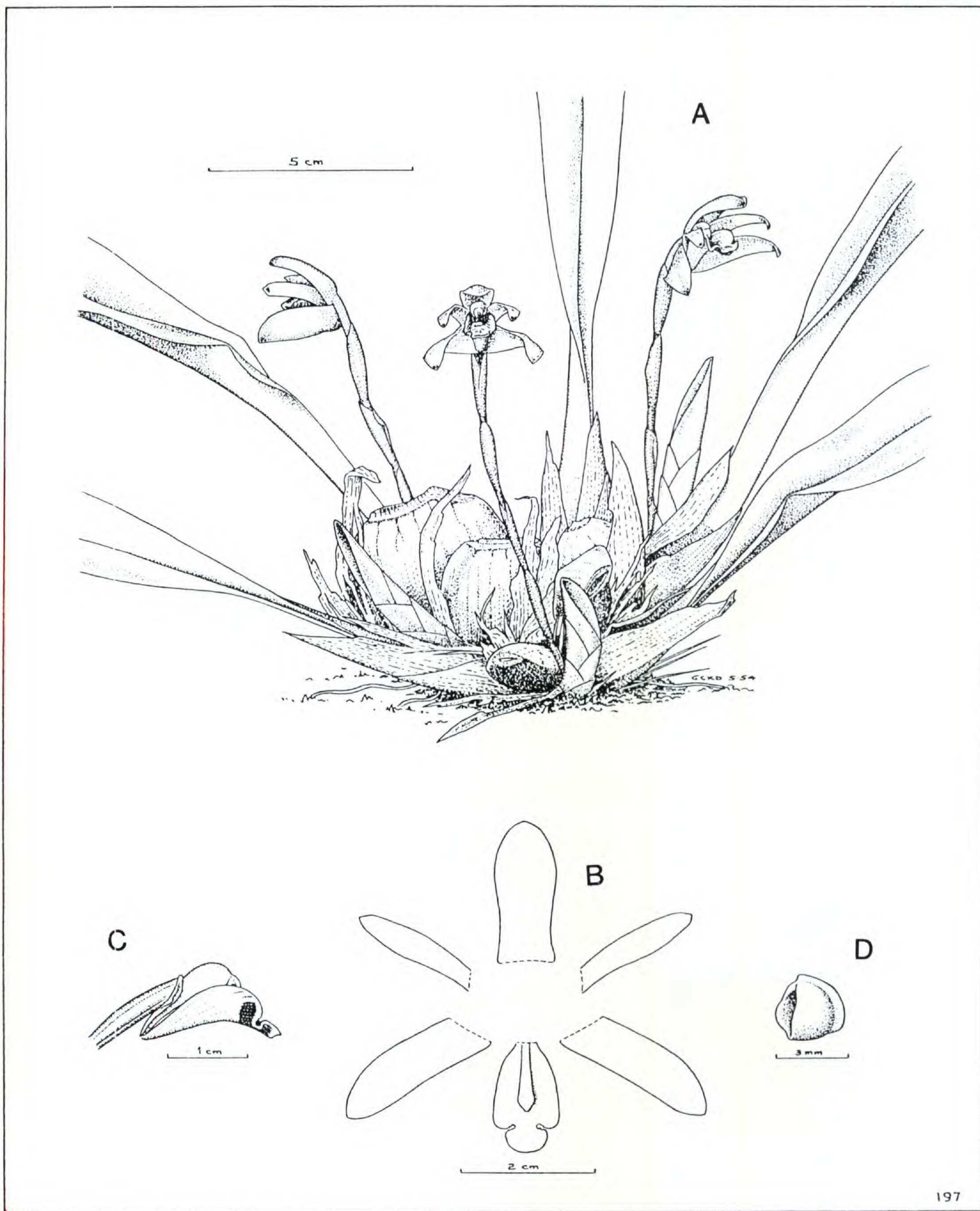


Figure 3. *Maxillaria brunnea*. — A. Flowering habit. — B. Perianth segments, flattened. — C. Column and labellum, lateral view. — D. Anther, lateral view. (Based on *Dunsterville & Dunsterville 197.*)

lobes. The species is widespread in the Neotropics at 900–1,800 m and is variable in size and details of the coloration of the flowers, as well as in the length of the inflorescence, but the variation seems not to show any correlation and we prefer to treat this group as a polymorphic species. However, many

of the names usually considered to be synonyms of *M. brunnea* are either distinct species or synonyms of other species, especially of *Maxillaria ringens* Reichb. f. *Maxillaria amazonica* and *M. powelli* are very close to *M. brunnea*, but the flowers are consistently smaller with sepals 1.6–2 cm long.

Maxillaria amazonica is known from Amazonian Brazil and Guyana and is restricted to elevations of 150–400 m while *M. powelli* occurs in Panama and western Colombia at elevations of 100–1,500 m.

The several species in this complex described from Brazil, mostly by Barbosa Rodrigues, merit careful study as most of them seem to be conspecific with *Maxillaria brunnea*. This group includes *Maxillaria leucaimata* Barb. Rodr., *Maxillaria porrecta* Lindley, *M. xanthosia* Barb. Rodr., and *M. yauaperyensis* Barb. Rodr.

The name *Maxillaria ringens* has been applied to *M. brunnea* or members of the *M. brunnea* complex several times (Schweinfurth, 1960: 726; Dunsterville & Garay, 1961: 217) or has been considered to be a synonym of the latter (Foldats, 1970: 427). Several descriptions in floras and other treatments are mixtures of characters of species of the *M. brunnea* complex and species of the *M. ringens* complex (Allen, 1949: 463; Foldats, 1970: 427). Species of the *Maxillaria ringens* complex are characterized by narrowly elliptic or narrowly oblong-elliptic, acuminate sepals, which tend to be white or pale cream to pale yellowish; the peduncles of the inflorescences tend to be shorter than the petiole of the leaf; usually several flowers are produced simultaneously from the same pseudobulb. The group occurs chiefly in Central America, with only *Maxillaria taracuana* Schltr. and *M. lactiflora* Pabst (syn. *M. lactea* Schltr.) in South America and restricted there to Amazonian Brazil and Venezuela. The systematics of the species close to *M. ringens* in Central America is still unclear, but the following belong in this group: *M. amparoana* Schltr., *M. brenesii* Schltr., *M. pubilabia* Schltr., *M. rousseauae* Schltr., and *M. tuerckheimii* Schltr.

Figure 3 is one of several plates by G. C. K. Dunsterville featuring *Maxillaria brunnea*. This particular illustration was published in *Venezuelan Orchids Illustrated* 2: 199, 1961, as *M. amazonica* Schltr. Additional iconography depicting our interpretation of *Maxillaria brunnea* is to be found in *Venezuelan Orchids Illustrated* 2: 217, 1961, (as *M. ringens* Reichb. f.); *Icones Plantarum Tropicalium* 1(2): 147, 1980; 1(11): 1044, 1984; 2(3): 252, 1990; *Flora de Venezuela* 15(4): 411, 1970 (as *M. amazonica* Schltr.).

The following selected specimens of *Maxillaria brunnea* show some of the geographic and morphological variation of our concept of the species.

COSTA RICA. ALAJUELA: Monteverde Reserve, Peñas Blancas river valley, 10°18'N, 84°45'W, 900–1,150 m,

29 Oct. 1986, *Haber ex Bello* 6147 (MO). ECUADOR. EL ORO: new road Santa Rosa to Loja, 830 m, 20 Mar. 1985, *Luer et al.* 10691 (MO). PASTAZA: Km 10 on road from Mera to Río Anzu, 1,400 m, 30 May 1986, *Dodson & Dodson* 16493 (MO). VENEZUELA. BOLÍVAR: Depto. Piar, Salto Aicha near eastern base of Uaipán-tepui, 62°32'W, 5°38'N, ca. 1,100 m, 27–28 Nov. 1982, *Davidse & Huber* 22830 (MO, VEN). TÁCHIRA: Río San Buena, 10 km E of La Fundación, 700–1,000 m, 7°47'–48'N, 71°46'–47'W, 13–15 Mar. 1980, *Liesner et al.* 9665 (MO, VEN).

Maxillaria trinitatis Ames is only a vegetatively large *M. brunnea*, and it is herewith reduced to synonymy.

NOMENCLATURE ALTERATION

Maxillaria brunnea Linden & Reichb. f., *Bonplandia* 2: 281. 1854. TYPE: Colombia. Norte de Santander: Ocaña, 7,000', May, *Funck & Schlim* 1161 (holotype, W, photo).

Maxillaria trinitatis Ames, syn. nov. *Sched. Orch.* 2: 34. 1923. *Maxillaria trinitensis* Broadway, *Orchid Rev.* 34: 202. 1926 (sphalm.). TYPE: Trinidad–Tobago. Trinidad: Aripo, *Broadway* 9890 (holotype, AMES).

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